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| Course No | | Course Name | L-T-P-Credits | |
| **CE 291** | | **DISASTER MANAGMENT** | **(3- 0- 0: 3)** | |
| Prerequisite: nil; Co requisite: nil | | | | |
| **Course Objectives**:   1. To provide basic conceptual understanding of disasters and its relationships with development. 2. To provide a general concept in the dimensions of disasters caused by nature beyond the human control as well as the disasters and environmental hazards induced by human activities with emphasis on disaster preparedness, response and recovery. 3. To enhance awareness of Disaster Risk Management institutional processes in India. 4. To build skills to respond to disasters. | | | | |
| **SYLLABUS** | | | | |
| **Module** | **Contents** | | | **Hours** |
| I | **Introduction on Disasters**:  Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity – Disaster and Development, and disaster management. | | | 2 |
| II | **Types, Trends, Causes, Consequences and Control of Disasters:**  Geological Disasters (earthquakes, landslides, tsunami, mining); Hydro-Meteorological Disasters (floods, cyclones, lightning, thunder-storms, hail storms, avalanches, droughts, cold and heat waves) Biological Disasters (epidemics, pest attacks, forest fire); Technological Disasters (chemical, industrial, radiological, nuclear) and Manmade Disasters (building collapse, rural and urban fire, road and rail accidents, nuclear, radiological, chemicals and biological disasters) Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters. | | | 7 |
| III | **Disaster Management Cycle and Framework:**  Disaster Management Cycle – Paradigm Shift in Disaster Management Pre-Disaster – Risk Assessment and Analysis, Risk Mapping, zonation and Microzonation, Prevention and Mitigation of Disasters, Early Warning System; Preparedness, Capacity Development; Awareness During Disaster – Evacuation – Disaster Communication – Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation – Post-disaster – Damage and Needs Assessment, Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment; IDNDR, Yokohama Strategy, Hyogo Framework of Action. | | | 8 |
| IV | **Disaster Management in India:**  Disaster Profile of India – Mega Disasters of India and Lessons Learnt Disaster Management Act 2005 – Institutional and Financial Mechanism National Policy on Disaster Management, National Guidelines and Plans on Disaster Management; Role of Government (local, state and national),Non-Government and Inter Governmental Agencies. | | | 5 |
| V | **Applications of Science and Technology for Disaster Management:**  Geo-informatics in Disaster Management (RS, GIS, GPS and RS) Disaster Communication System (Early Warning and Its Dissemination) Land Use Planning and Development Regulations Disaster Safe Designs and Constructions Structural and Non Structural Mitigation of Disasters S&T Institutions for Disaster Management in India. Study of Recent Disasters (at local, state and national level) And Preparation of Disaster Risk Management Plan of an Area or Sector Role of Engineers in Disaster Management. | | | 8 |

**Essential Readings:**

1. Pandey, M., “Disaster Management”, Wiley India Pvt. Ltd.
2. Singh, J., “Disaster Management: Future Challenges and Opportunities”, K W Publishers Pvt. Ltd.
3. Bhattacharya, T., “Disaster Science and Management” McGraw Hill Education (India) Pvt. Ltd.
4. Coppola D. P., “Introduction to International Disaster Management”, Elsevier Science (B/H), London, 2007.

**Supplementary Readings:**

1. H. N. Srivastava & G.D. Gupta, “Management of Natural Disasters in developing countries”, Daya Publishers, Delhi, 2006, 201 pages.
2. S. Shukla, S. Hussain, “Biodiversity, Environment and Disaster Management”, Unique Publications.
3. C. K. Rajan, N. Pandharinath, “Earth and Atmospheric Disaster Management : Nature and Manmade”, B S Publication.
4. J. P. Singhal, “Disaster Management”, Laxmi Publications.

**Property Tables/ Data book**

1. M. C. Gupta, “Manual on natural disaster management in India”, NIDM, New Delhi.
2. National Disaster Management Policy, 2009, GoI.
3. Disaster Preparedness Kit, American Red Cross.
4. Disaster Management Act 2005, Publisher by Govt. of India.